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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,815	01/31/2001	William T. Carpenter	96067-01500	8585
84868 7590 09/10/2009 BAKER & HOSTETLER LLP 1000 LOUISIANA, SUITE 2000 HOUSTON, TX 77002-5018				
EXAMINER KRECK, JOHN J				
ART UNIT 3672		PAPER NUMBER		
MAIL DATE 09/10/2009		DELIVERY MODE PAPER		

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* WILLIAM T. CARPENTER

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Appeal 2009-004986  
Application 09/773,815  
Technology Center 3600

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Decided: September 10, 2009

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Before LINDA E. HORNER, STEFAN STAICOVICI, and  
KEN B. BARRETT, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

William T. Carpenter (Appellant) seeks our review under 35 U.S.C.  
§ 134 of the Examiner's decision rejecting claims 11-20. We have  
jurisdiction under 35 U.S.C. § 6(b).

## SUMMARY OF THE DECISION

We AFFIRM.

### THE INVENTION

Appellant's claimed invention pertains to a method of modifying the axis of rotation of a planet by altering the planet's center of mass. Spec. 4, ll. 11-20. Claim 11, reproduced below, is representative of the subject matter on appeal.

11. A method of modifying the orientation of the axis of rotation of a planet comprising the steps of:
  - measuring the mass of a planet;
  - determining the center of mass of the planet;
  - characterizing the orientation of the axis of rotation of the planet;
  - selecting a desired orientation of the axis of rotation;
  - calculating a moment of stability required to cause the desired orientation of the axis of rotation;
  - determining a position and a mass of compensating substance sufficient to effect the moment of stability; and
  - positioning the mass in the position.

### THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Isaac M. Held, *The Gap between Simulation and Understanding in Climate Modeling*, BULLETIN OF AMERICAN METEOROLOGICAL SOCIETY, November 2005, at 1609-1614.

Richard Black, *Alarm at new climate warning*, BBC NEWS, Jan. 26, 2005, <http://newsvote.bbc.co.uk/mpapps/pagetools/print/news.bbc.co.uk/2/hi/science/nature/4210629.stm> (retrieved July 10, 2007).

Rui Xin Huang et al., *Computer Modelers Stimulate Real and Potential Climate, Work Toward Prediction*, OCEANUS, Dec. 1996, <http://www.whoi.edu/oceanus/printArticle.do?id=2324> (retrieved Jul. 11, 2007).

*A Model Approach to Climate Change*, PHYSICSWEB, Feb. 2007, <http://physicsweb.org/articles/world/20/2/3> (retrieved July 7, 2007).

Thomas Herring, *Geodesy*, in AccessScience@McGraw-Hill, <http://www.accessscience.com/content.aspx?searchStr=DOI+10.1036%2f1097-8542.286100&id=286100>, last modified May 17, 2002.

B. Fong Chao, *Excitation of the Earth's Polar Motion due to Mass Variations in Major Hydrological Reservoirs*, 93 J. GEOPHYS. RES., 13,811-13,819 (1988) (hereinafter "Chao").

HUGH A. BROWN, CATAclysms OF THE EARTH 151-56 (Twayne Publishers, Inc., 1966).

JOHN WHITE, POLE SHIFT: PREDICTIONS AND PROPHECIES OF THE ULTIMATE DISASTER 80, 81, 180, 181 (Doubleday & Company, Inc. 1980)

The following Examiner's rejections are before us for review:

1. Claims 11-20 are rejected under 35 U.S.C. § 101 as lacking patentable utility;
2. Claims 11-20 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the enablement requirement; and

3. Claims 11-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chao.

### ISSUES

The Examiner found that the claimed invention lacks a specific utility because it does not provide a well-defined and particular benefit to the public. Ans. 4. Appellant argues that the invention provides such a benefit, “namely altering the Earth’s axis of rotation to alter the amount of light received during the earth’s rotation.” App. Br. 4. Therefore, the first issue on appeal is:

Has Appellant shown that the Examiner erred in finding that the claimed invention lacks a well-defined and particular benefit?

The Examiner concluded that, because the claimed invention lacks the requisite utility, one skilled in the art would not know how to use the claimed invention, and rejected the claims for failing to comply with the enablement requirement. *See* Ans. 7-8. The Examiner also sets forth two specific bases for the enablement rejection. *Id.* at 8-10. Appellant contends that the Examiner has failed to make out a prima facie case of non-enablement. App. Br. 8. Therefore, the second issue is:

Has Appellant shown that the Examiner erred in rejecting claims 11-20 for failing to comply with the enablement requirement of § 112, first paragraph?

The Examiner concluded that it would have been obvious to one of ordinary skill in the art to extend the teachings of Chao so as to arrive at Appellant’s claimed subject matter. *See* Ans. 12. Appellant argues that the obviousness rejection lacks a suggestion or motivation to modify the

reference and lacks a showing that the cited prior art teaches or suggests all the claim limitations. App. Br. 9. Therefore, the third issue on appeal is:

Has Appellant shown that the Examiner failed to make a *prima facie* showing that one of ordinary skill in the art would have found Appellant's claimed method obvious?

### FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence.

1. Appellant's Specification states: "Such change in the axis of rotation [of the Earth due to a change of the center of mass] changes the relationship to the Sun, Moon and other planets and would effect the Earth's climatic pattern due to the change in angle of incidence to the Sun." Spec. 5, ll. 24-27.

2. Appellant's Specification does not provide any example of a desired orientation of the axis of rotation of a planet, or an example of a position and magnitude of compensating mass sufficient to result in the desired new orientation. Appellant's Specification offers no examples of how a given change in the axis of rotation would affect the Earth's climatic pattern or the amount of light that the Earth would receive.

3. Appellant's Specification does not disclose that the claimed invention can be used to provide a well-defined and particular benefit to the public.

4. Chao discloses that "changes in the Earth's inertia tensor due to mass redistributions will cause, or 'excite,' variations in the Earth's rotation." Chao, p. 13,811. The Chao paper examines the excitation of the

polar motion (the shift of the Earth's rotational axis) due to variations in hydrological reservoirs, such as lakes, artificial reservoirs, and a groundwater aquifer. *Id.* Chao discloses a mathematical expression for the polar motion excitation function  $\psi$  caused by the change in mass ( $\Delta m$ ) of a given hydrological reservoir (a "surface mass redistribution"). *Id.*

5. Chao also discloses that an increase in the mass (positive  $\Delta m$ ) of a hydrological reservoir located on longitude  $\lambda$  will push the pole towards the opposite longitude ( $\lambda+180^\circ$ ), and a decrease in mass (negative  $\Delta m$ ) will have the opposite effect in that it will pull the pole towards the reservoir's longitude ( $\lambda$ ). Chao, p. 13,812. Two identical changes in mass at the same latitude, but  $180^\circ$  apart in longitude, will cancel each other's contribution to the polar motion excitation function. *Id.*

6. Chao explains that the North American High Plains Groundwater Aquifer is the principal source of water in the midwest United States. Chao, p. 13,816. "The aquifer ... underlies about 450,000 km<sup>2</sup> in area and contains about  $4.0 \times 10^{15}$  kg of drainable water. ... If the entire aquifer were depleted, the rotational pole would shift toward  $101^\circ\text{W}$  by as much as 60 mas [milliarcseconds], corresponding to 1.8 m on the Earth's surface." *Id.*

7. Chao further teaches that the length of day (LOD) can be changed by mass redistributions, but the effect is of an extremely small magnitude. Chao, p. 13,812. For example, a mass variation of  $10^{14}$  kg can change the LOD by no more than 2  $\mu\text{s}$ , which is one or two orders of magnitude smaller than the modern measurement accuracy. *Id.*

## PRINCIPLES OF LAW

To satisfy the utility requirement of 35 U.S.C. § 101, a claimed invention must have both a specific and a substantial utility. *In re Fisher*, 421 F.3d 1365, 1371 (Fed. Cir. 2005). As to the specific utility requirement, “an application must disclose a use which is not so vague as to be meaningless.” *Id.* “[A]n asserted use must ... show that that claimed invention can be used to provide a well-defined and particular benefit to the public.” *Id.*

The “how to use” prong of the enablement requirement of 35 U.S.C. § 112, first paragraph, incorporates the utility requirement of § 101. *Fisher*, 421 F.3d at 1378-79. This is because a specification must contain a description of how to use a presently useful invention. *Id.* (quoting *In re Kirk*, 376 F.2d 936, 942 (CCPA 1967)). Thus, where an application fails to satisfy the utility requirement, the application fails, as a matter of law, to satisfy the enablement requirement. *Id.*

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966); *see also KSR Int’l Co.*, 550 U.S. at 407 (“While



the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”). The scope and content of the prior art includes the explicit and inherent teachings of the prior art. *In re Zurko*, 258 F.3d 1379, 1383-84 (Fed. Cir. 2001) (citing *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995)).

## ANALYSIS

*The rejection of claims 11-20 under 35 U.S.C. § 101 as lacking patentable utility*

According to Appellant’s Specification, the use of the claimed method “changes the [Earth’s] relationship to the Sun, Moon and other planets and would effect the Earth’s climatic pattern due to the change in angle of incidence to the Sun.” Fact 1. Appellant contends that the use of the claimed invention to alter the axis of the Earth’s rotation would alter the amount of light received on the Earth, and argues that this is an adequate utility. App. Br. 4. The Examiner found that this use does not provide a well-defined and particular benefit to the public, and therefore does not constitute a specific utility as required by § 101. Ans. 4, 13. We agree.

Appellant’s Specification offers no examples of how a given change in the axis of rotation would affect the Earth’s climatic pattern or the amount of light that the Earth would receive. Fact 2. Appellant does not present any persuasive argument or evidence to rebut the Examiner’s finding that the state of the art in climate modeling was, at the time of Appellant’s application, insufficient to predict the effect on the climate due to a change in the axis of rotation or to determine whether a particular climate change would be beneficial, Ans. 7. *See* App. Br. 4 (“the current state of the art in climate modeling does not provide the resolution the examiner suggests is

necessary ...”); *id.* at 7 (stating, without any evidentiary support, that “one of skill in the art would be able to calculate the changes to the climate pattern, on a macro scale.”). Rather, Appellant, citing *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed. Cir. 1992), incorrectly suggests that it is the Examiner’s burden to show that the claimed method is “totally incapable of achieving a useful result[.]” App. Br. 4. Appellant’s reliance on *Brooktree Corp.* is misplaced as that case concerns operability, and the Examiner is not asserting that the claimed invention is inoperable, Ans. 14. It is Appellant that must satisfy the threshold requirement of submitting a patent application disclosing a specific and substantial utility for the claimed method. *Fisher*, 421 F.3d at 1371.

Appellant embraces a hypothetical situation posited by the Examiner, and suggests that the invention is useful in that it might change the incidence of sunlight and alter the length of the day for a location on the Earth. App. Br. 4. However, the Chao reference suggests that the effect on the length of day due to mass redistribution is negligible. Fact 7. Chao also explains that removing  $4.0 \times 10^{15}$  kilograms of water from the Earth by depletion of the entire North American High Plains Groundwater Aquifer would only shift the rotational pole 1.8 meters. Fact 6. It is not clear that such a shift would provide a noticeable change in the climate patterns or the amount of light received on the Earth.

It seems that the state of the art will need to advance greatly before one can determine what, if any, benefit might result from Appellant’s claimed method of modifying a planet’s axis of rotation. We find that Appellant’s Specification does not disclose that the claimed invention can be used to provide a well-defined and particular benefit to the public. As such,

Appellant has not shown that the Examiner erred in rejecting the claims as lacking a specific utility.

*The rejection of claims 11-20 under 35 U.S.C. § 112, first paragraph, for failing to comply with the enablement requirement*

The Examiner determined that, because the claimed invention lacks the requisite utility, one of ordinary skill in the art would not know how to use the claimed invention. Ans. 7-8. The Examiner notes that the invention's purported utility is to change the Earth's climatic pattern, and concluded that one of ordinary skill in the art would not know how to perform the claimed step of "selecting a desired orientation of the axis of rotation" so as to result in a beneficial effect on the climatic pattern. *Id.* at 9-10. Appellant suggests that one of ordinary skill could select a desired orientation without undue experimentation. *See* App. Br. 7-8. Even if this assertion was true, it does not go far enough. The enablement requirement incorporates the utility requirement of § 101, *Fisher*, 421 F.3d at 1378-79, thus, Appellant's Specification must enable a useful process having a well-defined and particular benefit. While it is recognized that one could arbitrarily select an orientation, Appellant's Specification does not provide enough information to enable one of ordinary skill to select a desired orientation that would result in a beneficial change in the climatic pattern.

Where an application fails to satisfy the utility requirement, the application fails, as a matter of law, to satisfy the enablement requirement. *Fisher*, 421 F.3d at 1378-79. We have determined that Appellant's Specification fails to satisfy the utility requirement, and therefore affirm the enablement rejection.

Appellant argues that the Board has already adjudicated the enablement issue, and that the Examiner's enablement rejection is "procedurally improper and must be reversed." App. Br. 4-5. We are not persuaded by this argument because the utility rejection was not at issue in the previous appeal, and the enablement rejection before us flows from that utility rejection.

Appellant has not shown that the Examiner erred in rejecting claims 11-20 for failing to comply with the enablement requirement, and we sustain that rejection. Because we sustain the rejection for the reasons discussed above, we do not reach the Examiner's conclusion that the Specification also fails to enable the "calculating" and "determining" steps with respect to modifying the axis of rotation relative to inertial space, Ans. 8.

*The rejection of claims 11-20 under 35 U.S.C. § 103(a) as being unpatentable over Chao*

Appellant argues the rejected claims as a group. App. Br. 8-10. We select claim 11 as the representative claim, and claims 12-20 stand or fall with claim 11. 37 C.F.R. § 41.37(c)(1)(vii) (2009).

As an initial matter, we address Appellant's argument that the Examiner is "barred from reopening prosecution" by asserting this rejection because this rejection is cumulative of an obviousness rejection reversed by the Board in a previous decision. App. Br. 8. First, Appellant's argument that the rejection must be reversed because it is a "procedurally improper" reopening of prosecution is misdirected as procedural matters do not fall within the jurisdiction of the Board. *See In re Mindick*, 371 F.2d 892, 894 (CCPA 1967). Second, the rejection before the previous panel and the present rejection before us are different. The reversed rejection was based

on a Chao article entitled *Anthropogenic impact on global geodynamics due to reservoir water impoundment* in combination with a White reference and further in combination with a Brown reference. *See Ex parte Carpenter*, Appeal No. 2006-0089, slip op. at 9 (BPAI Apr. 21, 2006). Although Appellant admits that the Chao *Excitation* reference, upon which the current rejection is based, was not the subject of the earlier appeal, Appellant asserts that the *Excitation* reference is a subset of the *Anthropogenic* reference and, thus, is the “materially same reference.” App. Br. 8. Appellant does not, however, point to any disclosure relied upon by Examiner in the present rejection that is also in the *Anthropogenic* article or that was considered by the previous panel. *See id.* at 8-9.

We now turn to the merits of the rejection. Appellant appears to argue that the rejection does not have any suggestion or motivation to modify the reference. *See* App. Br. 9. This argument is foreclosed by *KSR*, in which the Court rejected the rigid requirement of a teaching, suggestion or motivation to combine known elements in order to show obviousness. *KSR Int’l Co.*, 550 U.S. at 418-19. The Court noted that an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* at 418.

Appellant also contends that the Chao *Excitation* reference fails to teach or suggest all of the claim limitations. App. Br. 9. However, Appellant does not identify any specific limitation that is allegedly not taught or suggested. *See id.* at 9-10. Rather, Appellant asserts that the Board, in the previous appeal, correctly reversed the obviousness rejection

based on the Chao *Anthropogenic* article, and that Chao *Excitation* is like the other article in failing to teach or suggest the claimed “pro-active method.” App. Br. 10. The Examiner made numerous findings as to where and how Chao discloses claim limitations, and how Chao differs from the claimed invention. Ans. 10-12, 16-17. Appellant does not challenge any of these findings. See App. Br. 9-10. The Chao *Excitation* reference does not teach a “pro-active method” in that it does not explicitly disclose selecting a desired new axis of rotation orientation, and then placing the appropriate mass in the appropriate position to obtain that new axis orientation. However, Chao does disclose a mathematical expression for the shift of the Earth’s rotational axis caused by a change in a mass at a point on the Earth. Fact 4. Chao also discloses the technique of placing a mass on the Earth so as to counter the effect on the polar motion due to a change in mass of an artificial reservoir. See Fact 5. The Examiner concluded that performing the steps of selecting, determining, and positioning would have been an obvious extension of Chao’s teachings. Ans. 12.

Appellant’s argument for patentability appears to be that one of ordinary skill in the field of geodesy would not consider it obvious to apply Chao’s teachings in a “pro-active” manner. Such an argument is based on the erroneous assumption that the ordinary artisan is an automaton who would fail to envision the applicability of Chao’s teachings. See *KSR Int’l Co.*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”). For example, Chao suggests the pro-active use of the teachings to position a mass so as to counter the effects due to a change of an artificial reservoir’s mass. See Fact 5; see also Ans. 11-12. The Examiner’s conclusion of obviousness is based on rational reasoning,

and Appellant has not persuaded us of error in the rejection of claim 11 as unpatentable over Chao. Accordingly, we sustain the rejection of claim 11, as well as the rejection of claims 12-20, which fall with claim 11.

#### CONCLUSIONS

Appellant has not shown that the Examiner erred in finding that the claimed invention lacks a well-defined and particular benefit. Thus, we affirm the rejection of claims 11-20 as lacking patentable utility.

Appellant also has not shown that the Examiner erred in rejecting claims 11-20 for failing to comply with the enablement requirement of § 112, first paragraph.

Further, Appellant has not shown that the Examiner failed to make a prima facie showing that one of ordinary skill in the art would have found Appellant's claimed method obvious.

#### DECISION

The decision of the Examiner to reject claims 11-20 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

#### AFFIRMED

Appeal 2009-004986  
Application 09/773,815

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